

Abstract: The unsteady flow of fluids in tubes of uniform circular cross-sections has applications in the chemical and petroleum industries. A significant amount of work, mainly theoretical, has been done for Newtonian and non-Newtonian flows. In this study, a particular non-Newtonian fluid is examined, which falls into the class of viscoelastic fluids and is known as the Upper Convected Maxwell fluid. In 1990, Han Shifang and Wo Yueqing, examined the transient response of a flow of this viscoelastic fluid in a tube of uniform circular cross-section. In more recent times, for this class of viscoelastic fluids, Rahaman and Ramkissoon examined some basic but interesting pipe flows. In neither research did the researchers investigate the fundamental question of the uniqueness of the solution. This research establishes that the solution for such is in fact unique.